National Aeronautics and Space Administration

NASA 2010

BLUE MARBLE AWARDS CEREMONY

June 16, 2010 • Denver, Colorado

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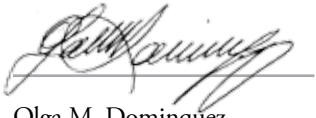
Welcome!

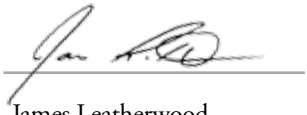
The Environmental Management Division (EMD) of the NASA Headquarters Office of Strategic Infrastructure (OSI) is pleased to host the fourth presentation of the NASA Blue Marble Awards.

The Blue Marble Awards Program recognizes excellence demonstrated in environmental and energy management in support of NASA's mission.

Please join us in congratulating the 2010 award winners during this awards ceremony. We also acknowledge all the individuals and groups who were nominated and thank them for their contribution to NASA's environmental leadership and stewardship.



Olga M. Dominquez
Environmental Executive and
Assistant Administrator
OSI, NASA Headquarters



James Leatherwood
Director
Environmental Management Division
OSI, NASA Headquarters

Category I

NASA Environmental Quality Award

This award is presented to one individual and one group based on accomplishments made in greening the Government, environmental management, conservation, environmental remediation, or environmental communication.

Category II

NASA Excellence in Energy and Water Management Award

This award is presented to one individual and one group based on accomplishments made in energy efficiency, water conservation, or renewable energy.

Category III

NASA Environmental Management Division Director's Environment and Energy Award

This award is presented by the Director of the Environmental Management Division, Mr. James Leatherwood, in recognition of exceptional leadership and professionalism in implementing NASA's mission and vision of "understanding and protecting the home planet" and "improving the quality of life on Earth."

Category I

NASA Environmental Quality Award—Individual

Barbara Naylor

Historic Preservation Officer
Environmental Management Branch
Kennedy Space Center, FL

Recognized for outstanding leadership and success as the Kennedy Space Center (KSC) Historic Preservation Officer (HPO) in managing KSC's Cultural Resources Management (CRM) program.

Ms. Naylor currently serves as the KSC HPO; her duties include being the primary point of contact for cultural (historic) and archeological resource preservation. KSC recognizes its stewardship responsibility for managing historic properties on NASA-owned lands. To this end, KSC's goal is to balance historic preservation considerations with the Agency's missions and mandates and to avoid conflict with the ongoing operational requirements of the Agency.

Ms. Naylor's leadership has enabled KSC to develop a proactive approach to advocating and managing the CRM program. Barbara interfaces with the Construction of Facilities, Shuttle, Transition and Retirement, and Constellation programs to build relationships and proactively consult on cultural resource issues to eliminate conflicts and manage requirements. For example, she successfully negotiated a Programmatic Agreement (PA) for the management of KSC Historic Facilities executed by the KSC Center Director, Florida State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) in May 2009. The PA allows KSC to perform normal maintenance and minor modifications; ensures that the historic, engineering, and architectural values are recognized and considered in the course of ongoing NASA programs; reduces mitigation for multiple component types (e.g., two launchpads, three mobile launcher platforms, and two crawler transporters); eliminates the preparation of future Memorandum of Agreements (MOAs) (normally required for each individual undertaking); and allows for the reuse of historic properties for new programs without Section 106 consultation.

Ms. Naylor also developed an internal mitigation plan for historic properties (i.e., listed or eligible for inclusion on the National Register of Historic Places) that may be affected by the Shuttle retirement and

transition to future programs. Ms. Naylor worked closely with transition managers to identify which buildings and structures will be closed, abandoned, and/or demolished. The mitigation plan also ensured that NHPA-compliance obligations did not affect first-need dates of future programs.

In March 2009, Ms. Naylor implemented the MOA for the demolition of the original Mission Control Center (MCC) used to support Mercury and Gemini missions. The MCC is a contributing structure to the Cape Canaveral Air Force Station National Historic Landmark (NHL). This is the first NHL that NASA will be demolishing based on an alternatives analysis that determined that there was no valid reuse opportunities. The mitigation includes assembling photo documentation (completed March 2009), inventory of artifacts within the facility (completed May 2009), purchasing and installation of a state marker, Web site development, and DVD development. Ms. Naylor put together a crossfunctional team of personnel from facilities, external relations, real property, and environmental to accomplish these mitigation measures. Due to Ms. Naylor's leadership and excellent communication, all historic property mitigation measures were completed ahead of schedule.

In addition to the proactive and effective leadership examples discussed above, Ms. Naylor completed the KSC CRM plan. She led CRM contractors in finalizing the plan in 2009; it allows KSC to manage historic and archeological properties in a more effective manner and has been commended by the KSC Business Management Office as a well-written plan that should be used as an example for future documents. She also created an interagency agreement document for the management of KSC archaeological activities and supported boundary surveys and excavations.

Category I

NASA Environmental Quality Award—Group

NASA Waste to Disney Dirt

Kennedy Space Center, FL

Team Members

Justin Junod, Team Lead
Janet Bethay, Innovative Health Applications
Samantha Dunscombe, Innovative Health Applications
Kimberly Finch, NASA
Maggie Forbes, NASA
Francis Kline, NASA
Charlie Reed, Walt Disney World
Lin Sensenig, Somat Company
Alice Smith, NASA
Jerry Vollenweider, Walt Disney World

Recognized for an event that is changing a culture by challenging and modifying 28 years of learned behavior and rooted methodology.

In support of KSC's commitment to its NASA and contractor family, KSC hosts an annual event called the "All American Picnic" (AAP), which recently marked its 30th anniversary. This event proudly provides a family friendly atmosphere, while promoting KSC's commitment to greening our environment by reducing the significant amount of waste generated at the event.

In 2008, a small, diverse team of zealous and inspired employees committed themselves to improving the way KSC conducts business. The team challenged 28 years of learned behavior and rooted methodology to break through boundaries and achieve new green goals by implementing a vision of sustainable practices which include: (1) significantly reducing waste collection, (2) instituting recycling and reuse efforts, (3) implementing and enhancing green purchasing practices, and (4) providing educational outreach to the public regarding KSC's commitment to greening our environment. In order to achieve these goals, the team identified existing processes at KSC to leverage solicited green concepts from vendors and partnered with outside entities to create methodologies for success. This collaborative approach gave the team significant insight on how to best address this highly visible and far-reaching opportunity.

Event attendees had the opportunity to observe food waste and compostable disposables shredded by pulping equipment provided by the Somat Company. Through an innovative partnership, the shredded garbage was transported to Walt Disney World's composting facility. NASA's waste was added to Disney's composting process and within 30 to 90 days was transformed into a rich soil that Disney uses throughout their Orlando parks. What was once NASA waste is now Disney dirt. Millions of visitors from around the world have seen the beautiful flowers and ornate shrubbery whose nutrient source can be traced to the compostable waste generated at KSC's All American Picnic. The partnerships with Somat, Disney, and local youth support groups are core to leading continued change in our Nation. See the following links for publicity associated with the work: *http://www.somatcompany.com/wastereductionnews.htm*, *http://kscpicnic.ksc.nasa.gov/green.htm*, *http://www.nasa.gov/centers/kennedy/pdf/216158main_mar7color.pdf*, and *http://www.nasa.gov/centers/kennedy/pdf/215951main_03-04-08.pdf*.

Leveraged activities, cost avoidance, built-in quality processes, and quality products reduced the impact to mission resources. This project has saved 5,880 pounds of waste from local landfills, donated over 1,000 pounds of cornhusks to a local rancher, and recycled over 14,000 plastic water bottles and 1,500 pounds of cardboard. All efforts have resulted in an approximate 80 percent reduction in waste. The cost savings are then reinvested into the event to provide additional features and services for the KSC family.

The greater goal realized from this team's action is leading change, building momentum, and anchoring changes in the workplace culture across the entire Agency. Over the past 2 years, these annual events became living laboratories of sustainability, and they serve as a catalyst for other Centers to implement changes of their own. The team created a new level of enhanced educational outreach to the NASA family and the public (approximately 12,000 individuals).

Category II

NASA Excellence in Energy and Water Management Award—Individual

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Leslie Prufert-Bebout, Ph.D.

Exobiology Branch
Ames Research Center, CA

Recognized for research utilizing algae to produce carbon-neutral renewable energy (diesel fuel, methane, and hydrogen) for NASA exploration, aeronautics, and national needs.

Dr. Leslie Prufert-Bebout is an internationally recognized expert on cyanobacteria diversity, ecology, and community structure. Her work to understand how natural biological communities, composed of many different species and how these species interact, is critical for developing artificial systems to generate diesel fuel, methane, hydrogen, or other commercial products. Her work informs what species should be used, what the community structure should be, and what the optimal conditions for growth are in order to maximize the production of the desired product. This work is critical for all applications, including open-pond systems for terrestrial uses and closed bioreactor systems suitable for NASA exploration applications. Dr. Prufert-Bebout is responsible for recognizing this need early on, launching an independent research project, and developing important collaborations with industry, academia, and other Government agencies. For example, from fiscal years (FYs) 2008 to 2010, Dr. Prufert-Bebout was the first to win peer-reviewed grant money ($895,000 from the Department of Energy [DOE] as Team Lead) to fund "green" energy research at Ames, studying carbon and nitrogen utilization in microbial communities, with a recent additional $500,000 awarded to extend the project for 2 additional years (FY11 and FY12).

With limited Center funding, Dr. Prufert-Bebout developed and served as the Principle Investigator for three projects with industry and local government: RoboAlgae, the Sunnyvale Water Pollution Control Plant, and Bodega Photo-bioreactors. These projects established Ames as a leader in the areas of telemetry monitoring for the algal biomass industry, use of local waste resources for biomass and energy (with reduction of carbon footprint), and development of photo-bioreactor algal resources targeted toward space operations, respectively. Dr Prufert-

Bebout also served as a co-investigator on the Google Award presented to Ames to foster awareness of the advancement of green technologies in Silicon Valley and beyond.

Dr. Prufert-Bebout was invited to speak and participate in three Algal Biomass Organization meetings and a DOE Genomes to Life awardee workshop. She has brought awareness to outside entities about ARC/NASA future mission objectives and how biological research and technology development on Earth can impact future space missions. As Team Lead for Ames, she developed a DOE Algal Biomass Consortium Proposal with the University of Texas, Shell Oil, Cargill, and other commercial partners. The proposal is worth $1.5 million to Ames over 3 years.

Category II

NASA Excellence in Energy and Water Management Award—Group

Energy Efficiency and Water Conservation Team

JSC Renewable Energy and Energy Conservation Program
Johnson Space Center, TX

Team Members

Robert D. Way, Team Lead
Doug Conover, NASA
Vicki Dautrich, Honeywell
Juan Etheridge, NASA
Wayne Hale, CSC
Dennis Klekar, NASA
Neil MacNeil, Honeywell
Melissa McKinley, NASA
Jose Morales, Honeywell
David Popham, CSC
Chris Provenzano, CSC
Jerry Rowlands, CSC
Jeffry White, NASA
Rob Williams, NASA
Yong-Il Yi, NASA

Recognized for the team's innovative and effective design and construction of various renewable energy systems and conservation projects.

The following projects would have never been conceived, championed, and completed without the close collaboration and teamwork of the members on the Energy Efficiency and Water Conservation Team at JSC. These projects provide cutting-edge technology, research, and educational opportunities, all of which are at the core of NASA's rich history.

Multi-Platform Renewable Energy System
The team implemented the Multi-Platform Renewable Energy System (MPRES) at its Child Care Center (CCC). The purpose of the project was to meet regulatory, executive order, and mission mandates while providing an excellent educational opportunity. Combining the reduction in energy and production from the MPRES, nearly 20 percent of Johnson CCC electricity is now met through renewable sources.

Solar Hot Water and Daylight Harvesting System
At Building 207, Gilruth Fitness Center, the team constructed a combination solar hot water and daylight harvesting system. The solar hot water system provides preheated water for the four 119-gallon electric water heaters using 12 solar collectors on the roof that are used to con-

vert sunlight into heat. This system is estimated to produce 432–528 kBtu per day, i.e., 50 to 70 percent of the hot water used at the fitness center. The project also included daylight harvesting, i.e., the use of diffused natural daylight as a source of lighting for a space when the weather permits.

Solar Parking Lot Lighting
The team installed solar parking lot lighting in three parking lots that did not have parking lot lighting and were judged to be a safety hazard. By installing the solar lighting, JSC has been able to avoid approximately 33,000 kWh per year.

Renewable Energy Generation System
The team performed a study to research installing a Renewable Energy Generation System (REGS) at the Saturn V Visitor Center. The study included several renewable technologies: a solar photovoltaic dish (solar laminates mounted on Visitor Center roof), Stirling electric solar concentrators, and a 50-kW wind turbine located in a field around the Visitor Center which is expected to generate approximately 705,000 kWh annually, reduce CO_2 emissions annually by 193,339 pounds, and provide green energy production.

Parking Lot, Street, and Sidewalk Lighting Retrofit
JSC retrofitted 872 parking lot, street, and sidewalk lights with T5 High Output (T5 HO) fluorescent fixtures. The advantages of the fluorescent fixtures over the existing lamps are lower energy consumption, better area lighting, lower maintenance cost, lower lumen depreciation rates, faster startup and restrike, better color rendition, and reduced glare. This project will save JSC approximately 570,000 kWh per year. The team also retrofitted 14 of JSC's high bay facilities with T5 HO fluorescent fixtures. This will save JSC about 1,000,000 kWh per year.

Building Manager/Energy Manager Collaboration
Working in collaboration with the building managers on site, the team checked and verified the existing building and lighting schedules in the JSC Energy Management and Control System (EMCS). This no-cost collaboration effort has paid off with 1,300,000 kWh savings per year.

Category III

NASA EMD Director's Environmental and Energy Award—Individual

Michael Blotzer, M.S., CIH, CSP
Environment Officer
Stennis Space Center, MS

Recognized for outstanding leadership and dedication to NASA's environmental programs.

Mr. Blotzer came to NASA in 1990 from the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), with extensive industrial hygiene experience in NY and ME. Mike's career at NASA began at Glenn Research Center (GRC). As the manager of the Environmental Office at GRC, he led a diverse organization delivering comprehensive environmental and occupational health programs for the Center. Mr. Blotzer served on the team that developed the NASA-wide ISO 14001-compliant Environmental Management System Procedures Manual; the manual won the White House 2001 Closing the Circle Environmental Award. He also developed, implemented, and registered an ISO 14001 Environmental Management System at GRC, the first NASA Center to receive ISO 14001 registration.

During the decommissioning of NASA's Plum Brook Reactor Facility in Sandusky, OH, Mike oversaw development of the alternatives analysis, decommissioning plan, and environmental assessment. He also served as NASA's representative to the Federal Aviation Administration on the Environmental Impact Statement for the expansion of Cleveland Hopkins International Airport and represented NASA in coordinating environmental remediation of NASA property associated with the expansion.

Mr. Blotzer moved to Mississippi in 2005 to manage the Environmental Office at Stennis Space Center. Over the past 5 years, he has led his team of environmental and occupational health professionals to deliver environmental- and industrial-hygiene services to the Center. For example, Mike successfully led the environmental-permitting effort for the A-3 rocket engine test stand, the first major rocket engine test facility built by NASA since the Apollo program. He also established an industrial hygiene program meeting OSHA Voluntary Protection Program (VPP) criteria as part of the Center's efforts to achieve OSHA

VPP Star accreditation. As the Center's Environmental Management System Representative, he supported innovations in the Center's Environmental Management System to improve environmental performance in the areas of pollution prevention, solid waste diversion, affirmative procurement, construction affirmative procurement, and construction storm water management.

Category III

NASA EMD Director's Environmental and Energy Award—Group

NASA Causeway Seawall Project Team

Kennedy Space Center, FL

Team Members

Daniel H. Hull, Team Lead
Kimberly Finch, NASA
Lester S. Howard, NASA
Francis Kline, NASA
Kevin Miller, Wyle Laboratories
Steven Peterson, United Space Alliance
John Shaffer, NASA
Scott Stilwell, NASA

Recognized for a coastal revetment project that successfully integrated independent projects to obtain and reuse demolished concrete resulting in a sustainable causeway development, saving $3 million while recycling 23,000 tons of concrete demolition debris.

This group demonstrated exceptional teamwork and leadership in conceiving and coordinating activities to proactively reduce institutional risk and also save tax dollars through obtaining, recycling, and utilizing demolished concrete. The project team replaced a vertical bulkhead with a stone revetment along NASA Causeway at KSC to provide long-term protection from erosion. The team used out-of-the-box thinking to incorporate 23,000 tons of concrete that originated from demolished buildings. The result was the diversion of solid waste on an unusually large scale and a cost savings of $3 million (about 44 percent of the project cost if virgin materials had been utilized). By replacing the bulkhead, institutional risk has been proactively reduced.

The NASA Causeway along the Indian River is the main point of entry for KSC and also serves the coastal evacuation route for North Merritt Island, FL. The causeway is protected from erosion by a vertical concrete bulkhead that was built in 1965. In recent years, the condition of this bulkhead has deteriorated, and a Construction of Facilities (CoF) project was created to replace the causeway armoring system.

Revetments absorb the wave's energy; and if large rocks are used, they provide an excellent reef-like habitat for fish.

The project team found that a large cost savings could be realized if recycled concrete was used in lieu of virgin rock material to support the granite boulders that actually bear the impact of the waves. KSC's Diverted Aggregate Reutilization and Collection Yard (DARCY) was already in the process of receiving concrete from demolition projects around KSC, but the quantity of concrete available was too low, and what was available was not useable, as it was in an unprocessed state. To remedy this problem and to utilize the value of the waste concrete material, the project management team figured out a way to obtain and process more material before the construction began.

The project management team coordinated within its own department, KSC Facilities Engineering, to allow ongoing CoF demolition projects to include the concrete processing as part of the demolition, thus avoiding the schedule problems and allowing the project to proceed as planned. This required a tremendous amount of coordination between the project team, the demolition team's lead design engineer and contracting officer, and the contractor. Also, the project team partnered with the KSC Environmental Group, which contributed $135,000 from the Center's recycling proceeds to fund the processing.

KSC is adjacent to Cape Canaveral Air Force Station. At the same time, the concrete processing issues were being worked out on KSC, the U.S. Air Force was demolishing a very large building named the "Vertical Integration Building" (VIB) that was used for the Titan Rocket program. Because our project required more recycled concrete than was available at the DARCY, the project team approached the Air Force contractor, AMEC Construction, about the disposal of the building's large concrete foundation. It was beneficial to both parties to recycle the concrete with our project.

The project team coordination resulted in the recycling of 23,000 tons (46,000,000 pounds) of concrete between the existing DARCY materials, new deposits from demolished KSC buildings, and the VIB concrete. The total project length was 2½ miles, requiring approximately 60,000 tons of stone material. Because the project management team was able to obtain, recycle, and reuse demolished concrete, the cost of the revetment project was decreased from $6.8 million to $3.8 million, a $3 million savings to NASA.

EMD thanks Kathy Callister for serving as the Blue Marble Awards Program Coordinator from 2007 to 2010. The 2010 Selection Committee members included Michael Goodman, Heather Pizzamiglio, Elizabeth Walker, Linda Wennerberg, and Calvin Williams.

The 2012 Blue Marble Awards call for nominations will be posted at *https://nasaspacebook.nasa.gov/web/bluemarble/home* and *http://environmental.hq.nasa.gov/*.

Notes:

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Operating with the Environment in Mind.


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